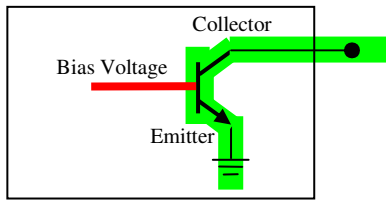
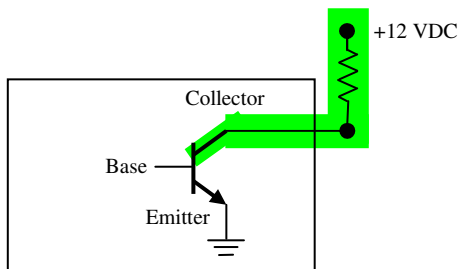


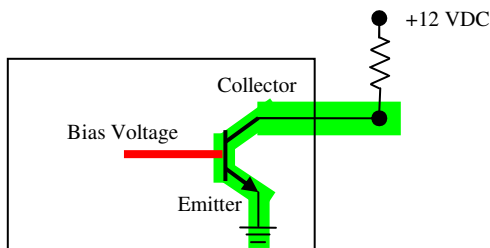
**Fig. 1** - Transistor in the Open Collector configuration. With no base bias voltage applied, the transistor is OFF; a high resistance exists between the collector and emitter impeding any current flow.



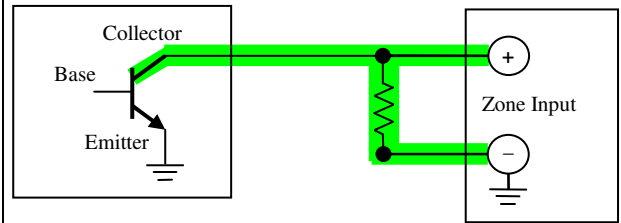
**Fig. 2** - With a bias voltage applied to the base, the transistor is turned ON; the collector is pulled down to ground potential through the now conducting collector-base and base-emitter junctions.



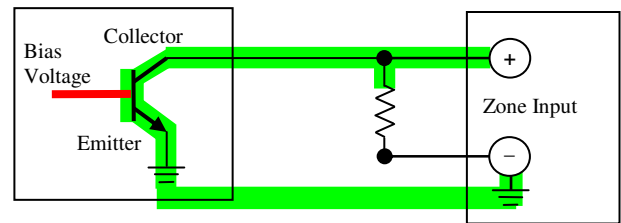
**Fig. 3** - With no bias, the voltage at the collector with respect to ground is 12 VDC. The resistor pulls the collector up to 12 VDC.



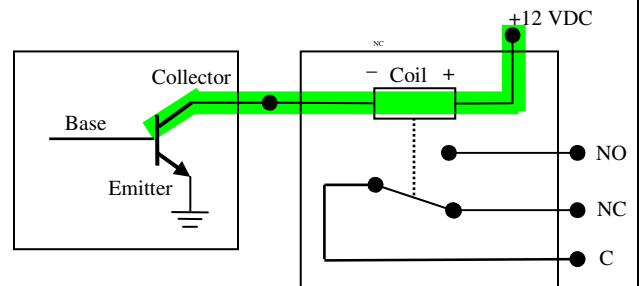
**Fig. 4** - With bias applied, the voltage at the collector is now pulled down to ground; zero voltage at the collector.



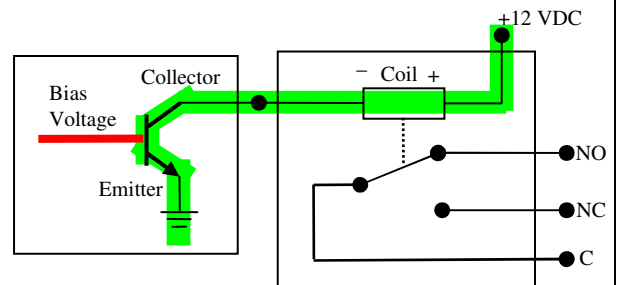
**Fig. 5** - Open Collector connected to a zone input of an automation/security panel. No bias applied. Zone input reads across the resistor. Current flows from + to - terminals. Open Collector acts as a Normally Open contact switch.



**Fig. 6** - The base is now biased. The resistor is shorted out by the conducting collector and emitter junctions. The panel sees a change in resistance across the zone input and reacts accordingly. Note circuit completion through the ground path.



**Fig. 7** - Unbiased Open Collector connected to the minus side of a relay's solenoid. Relay is not energized. Common is connected to Normally Closed. Use relay contacts as desired.



**Fig. 8** - Open Collector now biased. Relay is energized and contacts change state. Common is now connected to Normally Open.